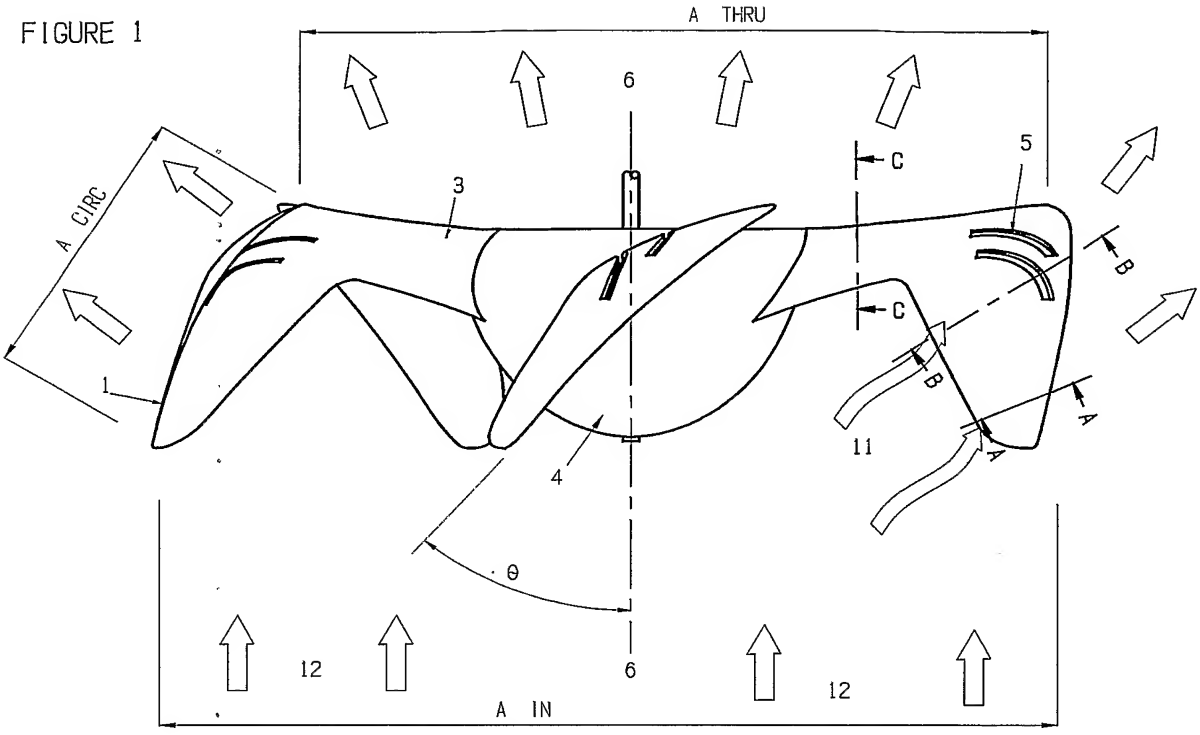
FIGURE 1



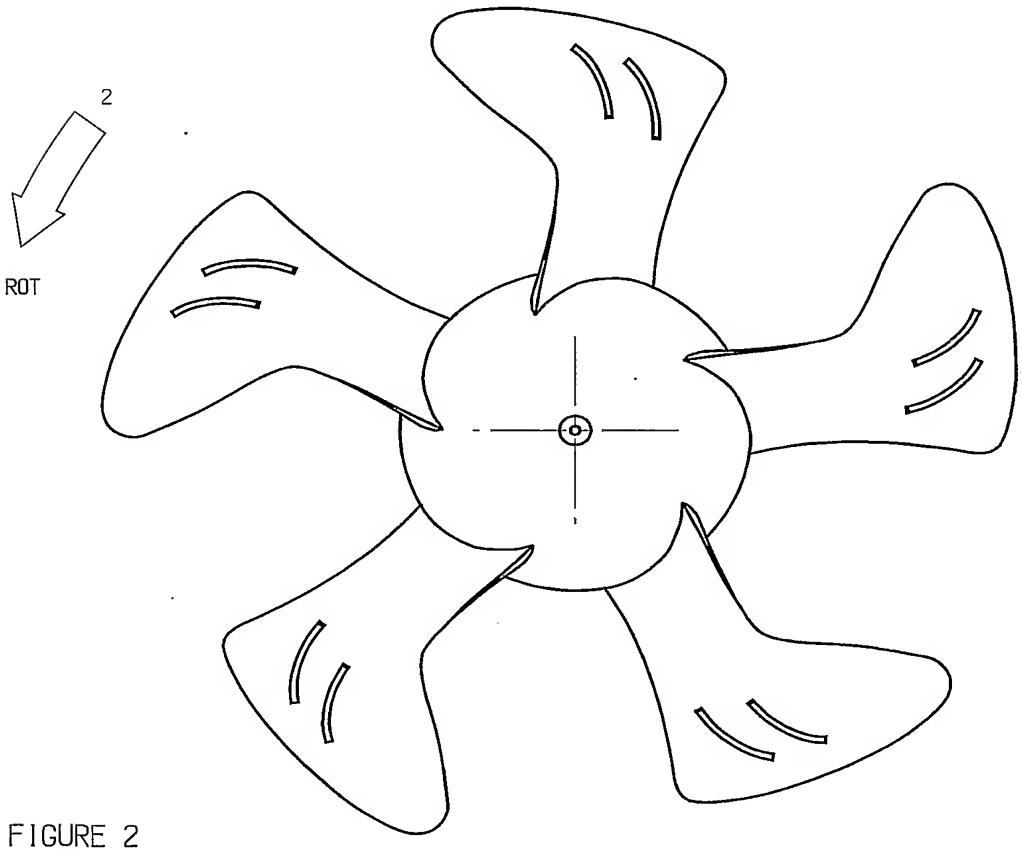


FIGURE 2

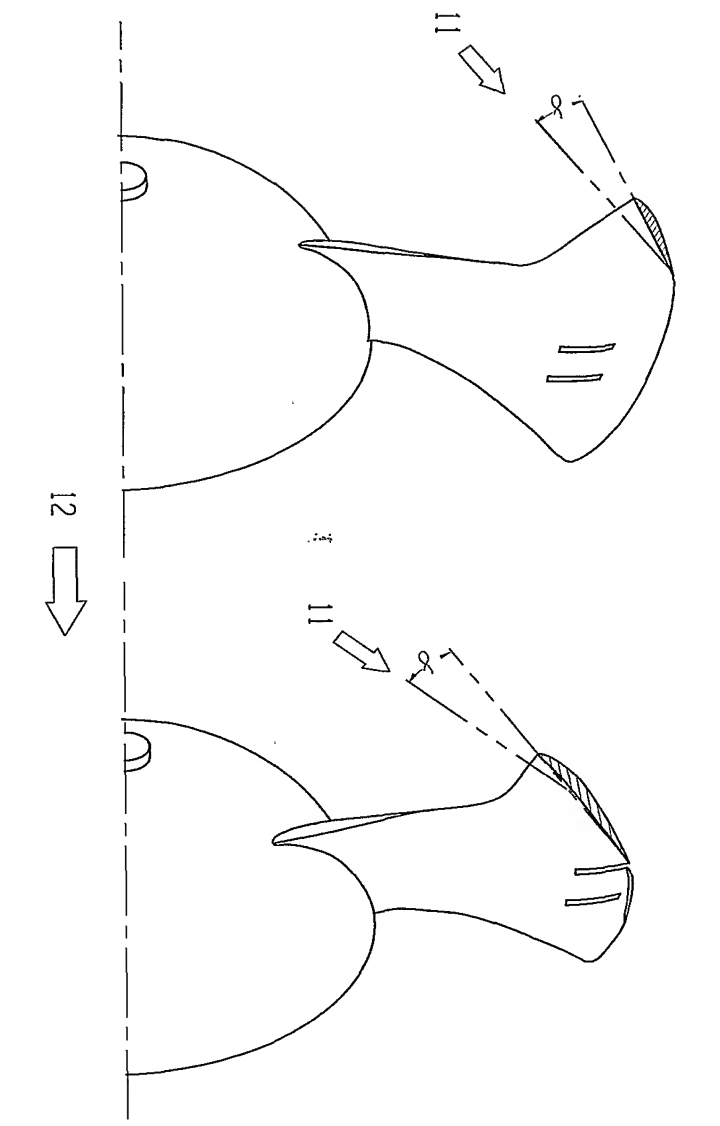


FIGURE 3 (a)
(SECTION A - A)

FIGURE 3 (b)
(SECTION B - B)

FIGURE 4
(SECTION C - C)

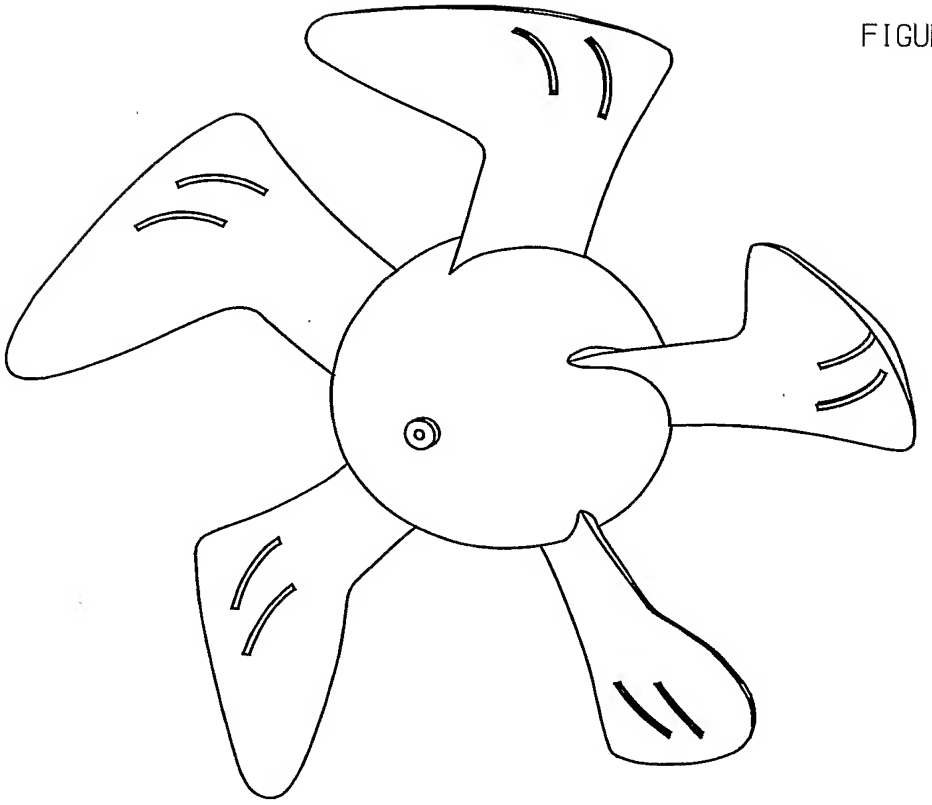


FIGURE 5

FIGURE 6 A

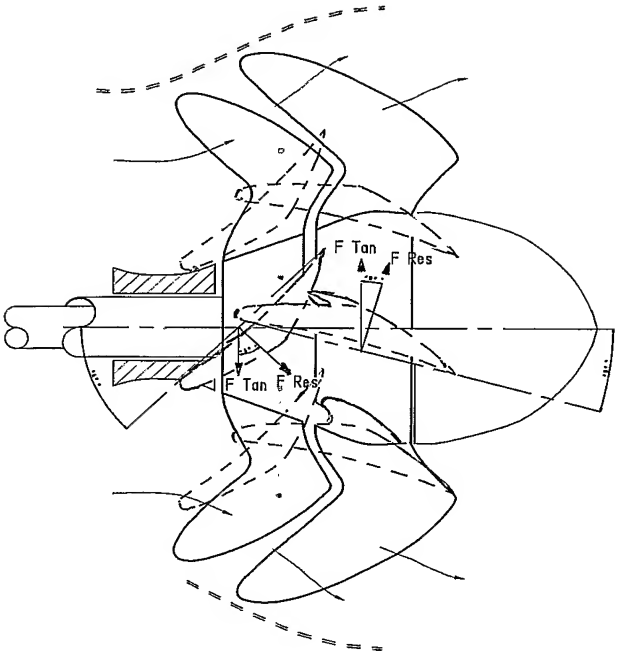


FIGURE 6 C

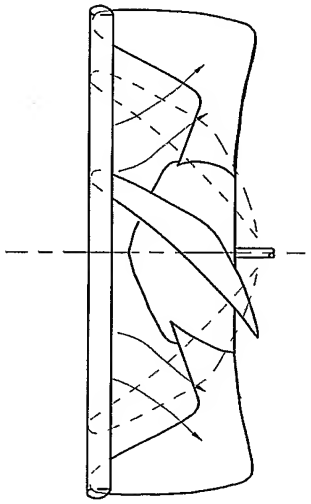


FIGURE 6 B

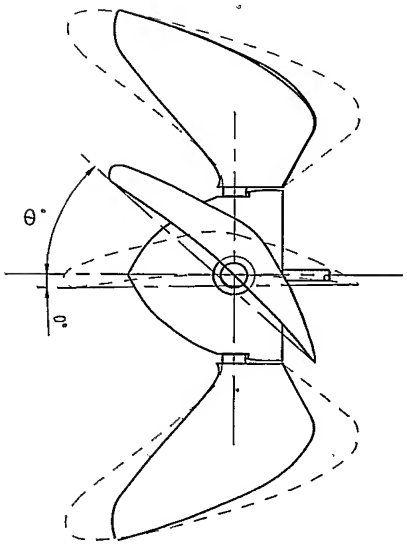
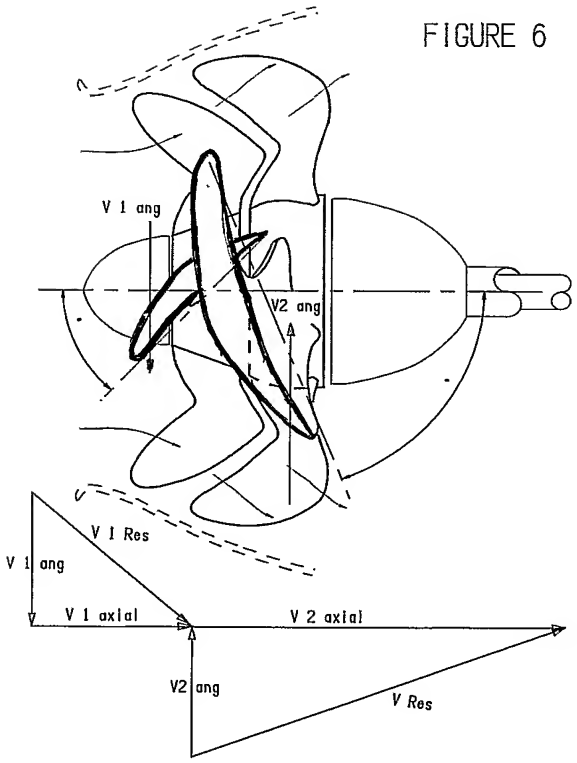


FIGURE 6 D



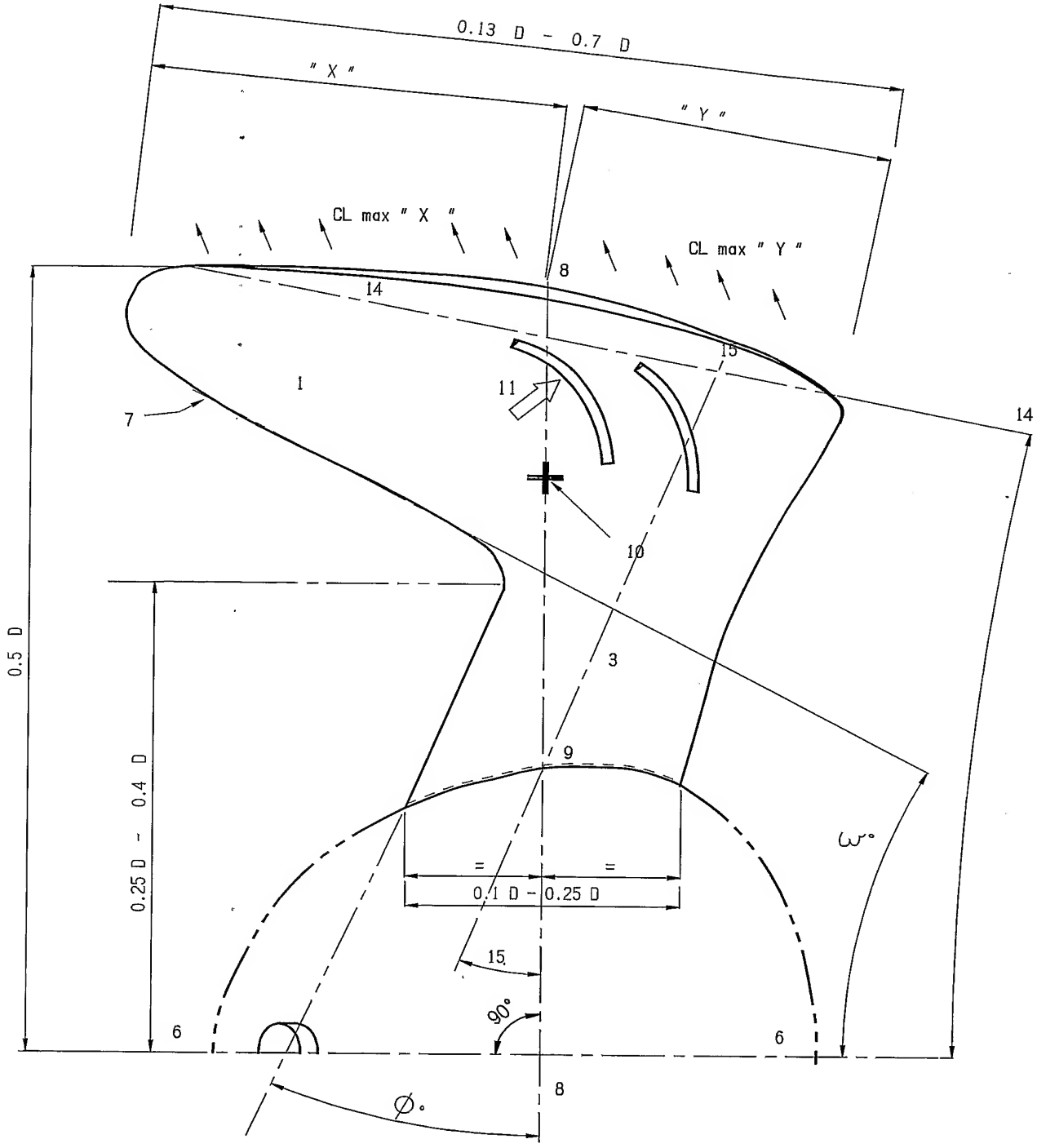

0.13 D - 0.7 D
" X "
" Y "
CL max " X "
CL max " Y "
8
14
15
1
11
7
14
10
0.5 D
3
9
0.25 D - 0.4 D
ω°
=
=
0.1 D - 0.25 D
15
90°
6
6
8
∅°

Figure 5: Power Coefficient at various tip speed ratios at 5th order polynomial fitting

Figure 6: Power curves predicted from a Power Coefficient of 0.52

rotor diameter 0.765 meters

7. DISCUSSION:

The system characteristic curve follows the general wind generator curve (Cp value starts at zero, reaching a maximum and then dropping back to zero Cp value at a higher tip speed ratio). At each reading, it was observed that both the blade revolutions and the torque readings were varying slightly and accordingly averages were taken from each set of 2-3 readings.

8. CONCLUSIONS and RECOMMENDATIONS:

From the system characteristic plots, it can be assumed that maximum Power Coefficient (a measure of efficiency which has a maximum theoretical efficiency of 0.593 known as the Betz limit) would be around 0.52 occurring at about 1.6 tip speed ratio.